Mechanical Equivalents

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BY

HERBERT WRIGHT,
Principal Examiner, Division Twenty,
U. S. Patent Office.

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It may be said without doubt that in general the commercialization of inventions and of patent rights has done much to increase the value of patents and to standardize the values of patentable inventions.

The individual inventor of one or more inventions which he may have perfected, either by his genius or by his patience and perseverance, having secured protection by taking out patents on his inventions, seeks to interest capital in the development of his ideas. If the invention appears to be worthy of consideration, the services of a patent attorney are secured in order to determine the probable validity of the patents and the scope of the equivalents which they may be held to cover. If his patents are taken up for investigation by a corporation, the Mechanical Engineer first investigates the operativeness and desirability of the inventions in connection with the particular art under consideration. Subsequently the attorney investigates the patents for validity and probable scope of equivalents.

Again, suits for infringement may be brought upon the patents and again the attorney investigates the patents for validity and probable range of equivalents. It is, therefore, apparent that the scope of the mechanical equivalents covered by a patent is very important at every stage of the investigation.

HISTORY.

The doctrine of mechanical equivalents is one which has been in the process of development from an early date. The statute does not require equivalents to be stated in the specifications and claims of patents, nor

does it give protection for equivalents *as such* in its terms. The Rules of Practice make no mention of the use of the doctrine of equivalents for the guidance of the Patent Office in determining the question of patentability.

The patent act of 1790 made no requirement that the invention should be particularly claimed. It did require, however, that the "specification shall be so particular, and said model so exact, as not only to distinguish the invention or discovery from other things before known and used, but also to enable a workman or other person skilled in the art of manufacture, whereof it is a branch, or wherewith it may be nearly connected, to make, construct, or use the same to the end that the public may have the full benefit thereof, after the expiration of the patent term."

The act of 1793 required that the inventor should file in the office of the Secretary of State "a written description of his invention, and of the manner of using, or process of compounding the same, in such full, clear and exact terms, as to distinguish the same from all other things before known, and to enable any person skilled in the art or science of which it is a branch, or with which it is most nearly connected, to make, compound and use the same."

In the act of 1836 it was required that the inventor "shall particularly specify and point out the part, improvement, or combination which he claims as his own invention or discovery." This appears to be the first act in which a distinct claim was required.

The Consolidated Patent Act of 1870 (Sect. 26) contained the requirement similar to that of Section 4888, of the Revised Statutes, to the effect that the inventor "shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery." The present requirements of Rule 37 first appeared in the eighth Revised Edition of the Rules of Practice, November 16, 1885.

Nothing indicative of an equivalent had been referred to in statutes or rules.

Walker in his first edition (1883) says: that "to define an equivalent is at present a weighty and difficult

undertaking. It is weighty because many rights of property now depend, and always will depend, upon the definition. It is difficult because the deliverances of the Supreme Court upon the subject are inharmonious, and because none of those deliverances is accompanied by elementary reasoning on the merits of the question."

Robinson (Vol. 1, Sect. 245) says in effect, that the rules which govern the immaterial diversities of inventions, taken together, constitute the "Doctrine of Equivalents."

As a uniform rule "one who claims and secures a patent for a new machine or combination thereby necessarily claims and secures a patent for every mechanical equivalent for that device or combination."

Kinlock Telephone Co. *vs.* Western Electric Co. (113 F., 652).

DEFINITION.

A general definition of the term "mechanical equivalents" must, therefore, be deduced from the interpretations which have been given to the term in the decided cases.

Age of the equivalent element. In a number of early decisions it was held that in order to be an equivalent the element must have been known at the date of the patent. The doctrine was first announced by Justice Clifford and was held in the cases of Seymour *vs.* Osborn (11 Wall., 556); Gould *vs.* Rees (15 Wall., 187); Gill *vs.* Wells (22 Wall., 31); Imhacuser *vs.* Buerk (17 O. G., 795); and other decisions. The cases of Mason *vs.* Graham (23 Wall., 275), and Potter *vs.* Stewart (18 Blatch., 563) (Blatchford, J.) among the early decisions held the opposite view.

This element of age although reiterated in a number of decisions, and stated by Robinson as being the only logical and scientific test, appears to have been almost universally ignored in reaching the conclusions of the courts.

When the equivalent element becomes known through the gradual development of human information the inventor would seem to be as much entitled to a portion

of that development in his patent as that the public should be entitled to the entire benefit thereof, eliminating the patent from consideration. This proposition would appear to be in accord with the principle that an inventor is entitled to all the uses to which his invention may be put no matter whether he knew of those uses or not. In Oehric *vs.* Horstmann (131 F., 478) and General Electric Co. *vs.* Winsted Gas Co. (110 F., 963), it was held that unless the equivalents are specifically disclaimed "all equivalents are covered by a patent whether the inventor thought of them or not." Also in Vrooman *vs.* Penhollow (179 F., 296) a patentee was held entitled to equivalents although they were not described in the specification.

The later decisions more distinctly negative the requirement of age as to the infringing element. Among these are:

McCormick Harvester Co. *vs.* Aultman (69 F., 386).

Gould Coupler Co. *vs.* Pratt (70 F., 627).

Read Holiday & Sons *vs.* Schmilze Berge (78 F., 496).

Edison El. L. Co. *vs.* Boston Incandescent Lamp Co. (69 O. G.), 245.

There are, however, a few later decisions which mention age as a condition precedent to constituting a proper equivalent. Among these is the case of Denning Co. *vs.* American Steel Co. (169 F., 793) referring to the ingredients of a compound.

"It is, therefore, safe," says Walker (4th Edition), "to define an equivalent as a thing which performs the same function and performs that function in substantially the same manner as the thing of which it is alleged to be an equivalent" (Sect. 354).

To this Robinson adds the requirement that the substitution of the equivalent must not in any manner vary the idea of means. Hobbie *vs.* Smith (27 F., 656); Adams *vs.* Bellair Stamping Co. (28 F., 360); Brighton *vs.* Wilson (18 F., 378); Dey Time Register Co. *vs.* Syracuse Time Register Co. (152 F., 440). That it must perform the same function is set forth in Piper *vs.* Shedd et al. (35 O. G., 256).

Turning now to some of the leading decisions in which definitions are discussed we find the following:

An equivalent in the law of patents is defined to be "an act or substance which is known in the arts as a proper substitute for some other act or substance, employed already as an element in an invention, whose substitution for that other act or substance does not in any manner vary the idea of means. It possesses three characteristics:

(1) It must be capable of performing the same office in the invention as the act or substance whose place it supplies.

(2) It must relate to the form of embodiment alone, and not affect in any degree the idea of means.

(3) It must have been known in the arts, at the date of the patent, as endowed with this capability." (1 Rob. Pat., Sec. 247). Duff Mfg. Co. *vs.* Forgie (59 F., 772).

This third characteristic as to the age of the equivalent has been discussed above.

"A mechanical equivalent which may be substituted for an omitted mechanical element in a combination claim is one that performs the same function by applying the same force to the same object through the same means and mode of application."

Hardison *vs.* Brinkman (156 F., 962).

The term "equivalents" has two meanings as used in patent cases. The one relates to the results that are produced, and the other to the mechanism by which those results are produced.

Johnson *vs.* Root (1 Fisher, 351).

The equivalency of construction relates in mechanics to similarity of means, functions and results.

Eames *vs.* Worcester Pol. Inst. (123 F., 67).

Mechanical devices are equivalents when skilful and experienced workmen know that one will produce the same result as another.

Johnson *vs.* Root (1 Fisher, 351), and May *vs.* Fond du Lac (27 F., 691).

"The substantial equivalent of a thing is, in the sense of the patent law, the same as the thing itself. Two devices which perform the same function in substantially the same way, and accomplish substantially the same result, are, therefore, the same, though they may differ in name or form."

Machine Co. *vs.* Murphy (97 U. S., 120).

The term "equivalent" means "equally good" when it refers to the ingredients of compositions of matter.

Tyler *vs.* Boston (7 Wallace, 330).

Primary and secondary inventions. In the various texts books it has been attempted in applying the doctrine of equivalents, to draw a line of distinction between primary or pioneer patents and secondary or improvement patents.

Thus: A *primary invention* is one which performs a function never performed by any earlier invention: Morley *vs.* Lancaster (129 U. S., 373); Celluloid *vs.* Mfg. Co. (44 F., 86); Norton *vs.* Jensen (49 F., 862); Nat'l. Reg. Co. *vs.* Am. R. Co. (53 F., 372); Boston L. Mach. Co. *vs.* Woodward (53 F., 481).

A *secondary invention* is one which performs a function previously performed by some earlier invention, but which performs that function in a substantially different way from any that precede it: Butz Co. *vs.* El. Co. (36 F., 192); Writing Mach. Co. *vs.* Book Ty. Co. (108 F., 629).

No clear line, however, has been found to exist between primary and secondary inventions.

To be entitled to the doctrine of equivalents, it is not essential that the patent shall be for a pioneer invention in the broad sense of that term. If the invention is one that marks a decided step in the art, and has proved of value to the public, the patentee will be entitled to the benefit of the rule of equivalents, though not in so liberal a degree as if his invention were of a primary character:

Bundy Mfg. Co. *vs.* Detroit T. Reg. Co. (94 F., 524).

But, when an invention is not a pioneer invention, the inventor is held to a rigid construction of his claims.

Wright *vs.* Yuengling (155 U. S., 47).

In the case of Kokomo Fence Mach. Co. *vs.* Kitselman (189 U. S., 8), it was attempted to decide the question as to whether the invention was a pioneer or a secondary one, in a suit on several patents covering wire fabric machines.

The Circuit Court held the patents to cover *secondary inventions* and found non-infringement for the defendants. The Circuit Court of Appeals held one of the patents in suit to cover a *primary invention*, and found it to be infringed by the defendant's machine. The Supreme Court agreed with the Circuit Court, finding that the invention was a secondary one and the defendants not entitled to recover.

Many decisions enunciate the proposition that the doctrine applies equally to all inventions.

The term "mechanical equivalent" has a broad and generous signification in the interpretation of a pioneer patent, a very narrow and restricted meaning in the construction of a patent for a slight improvement, and in the interpretation of patents for the great mass of inventions which fall between these extremes, its meaning is proportioned to the advance which the invention under consideration evidences.

Mallon *vs.* Wm. C. Gregg Co. (137 F., 68).

PRIMARY INVENTIONS ENTITLED TO A BROAD RANGE OF EQUIVALENTS.

To sustain a claim of infringement of a patented machine, three things must be found: First, identity of result; second, identity of means; third, identity of operation. The fact that an invention is of a primary character does not entitle the patentee to all means for accomplishing the same result.

Am. Can Co. *vs.* H. S. Canning Co. (137 F., 86).

The patentee of an invention which, although for an improvement only, is of undoubted utility and constitutes a marked advance in the art, is entitled to the benefit of the doctrine of equivalents commensurate with the invention disclosed.

Columbia Wire Co. *vs.* Kokomo S. & W. Co. (143 F., 116).

The decisions that an element included in a claim can not be regarded as immaterial were not intended to exclude from consideration the doctrine of mechanical equivalents. An element can not be held to be immaterial where there is no corresponding element in the other party's claim; but where there is a corresponding element the question whether they are mechanical equivalents must be determined.

Ex parte Thompson (98 O. G., 227).

An improver may be a pioneer in a limited field.

Howe Mach. Co. *vs.* Coffield Motor Washer Co. (197 F., 541).

To what liberality of construction these claims are entitled depends to a certain extent upon the character of the invention, and whether it is what is termed in ordinary parlance a "pioneer." This word, although used somewhat loosely, is commonly understood to denote a patent covering a function never before performed, a wholly novel device, or one of such novelty and importance as to mark a distinct step in the progress of the art, as distinguished from a mere improvement or perfection of what had gone before. Most conspicuous examples of such patents are: The one to Howe for the sewing machine; to Morse for the electric telegraph; and to Bell of the telephone.

Westinghouse *vs.* Boyden Power Brake Co. (170 U. S., 537).

The Welsbach patent No. 837,017, for "a pyrophoric alloy containing cerium alloyed with iron, as and for the purpose described." *Held,* to cover a poineer invention

and entitled to that liberal application of the doctrine of equivalents, which is usually accorded to such patents.

Freibacher Chemische Werke Gesellschaft mit beschrankter Haftung *vs.* The Roessler & Hasslacher Chemical Co. (209 O. G., 1689).

The words "substantially as described" in a claim do not limit the patentee to the exact mechanism described nor deprive him of the benefit of rule of equivalents to the same extent as if they were absent.

National Tube Co. *vs.* Mark et al. (216 F., 507).

IMPROVEMENT PATENTS ENTITLED TO A MORE LIMITED RANGE OF EQUIVALENTS.

"A patentee who is not a pioneer, but a mechanical improver, though the first to achieve commercial success is not entitled to treat as equivalents distinct mechanical improvements of others."

Mayo K. M. & N. Co. *vs.* Jencks (121 F., 110).

A patentee whose invention is meritorious, although he is not a pioneer, is entitled to a reasonable range of equivalents measured by the advance he has made over older machines.

Dowagiac Mfg. Co. *vs.* Minnesota M. Plow Co. (118 F., 136).

A patentee is not to be denied protection commensurate with the scope of his actual and distinctly described invention by wholly excluding him from the benefit of the doctrine of equivalents, even as against one who has made only such changes as are palpably colorable and of such character as to show that they were studied evasions of the particular devices described in the patent.

Lepper et al. *vs.* Randall (113 F., 627).

A patentee of an improvement on a prior combination by adding thereto a single new element is not entitled to claim equivalents to the same extent as the patentee of the original combination.

> Am. Stoker Co. *vs.* Underfeed Stoker Co. (182 F., 642).

When the invention of a patent is not a pioneer invention, the inventor is held to a rigid construction of his claims, and is not entitled to any considerable range of equivalents: and when, in a patent for a mere improvement, which in view of the prior art is extremely narrow, he has limited his claims by specific words to the specific form of device or element, he is bound thereby.

> Sharp *vs.* Bellinger et al. (168 F., 296).

PATENTS SHOULD BE LIMITED TO WHAT IS CLAIMED.

On the other hand the claims of a patent should be limited to the thing claimed. The claim is the written definition of the character and scope of the thing protected. Robinson says (Vol. II, Sec. 505):

> "The courts will not go into the history of the art to ascertain what he has really discovered and what he might have patented if he had chosen but will take him at his word and protect him according to the terms in which he has himself demanded such protection."

The statutory prerequisite to the claim has already been referred to. The applicant must—

> "particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery."

It is clearly necessary that the inventor afford information to the public as to precisely what he regards the limitations of his monopoly, otherwise the public would have no means of knowing the extent of existing monopolies, and from what portion of the field of invention the

inventor should exclude himself in the practice of his art.

The Supreme Court in the case of Pope Mfg. Co. *vs.* Gormully (144 U. S., 224) said:

> "The rights of the public to use that which can not be lawfully monopolized is just as important, and should be as jealously guarded, as the rights of a real inventor."

Among other decisions may be cited the following:

> "Where the actual invention, described in the specification is larger than the claims of the patent, patentee, in suit for infringement, is limited to what is specified in the claims."
>
> Bates *vs.* Coe (98 U. S., 38).

"Courts will go far to save a patent for a meritorious invention, but can not reconstruct claims and disregard their very terms, and add or subtract material words not found therein but necessary if the true invention is to be covered."

Sharp *vs.* Bellinger et al. (168 F., 295).

"The courts are bound by the language chosen by the inventor in framing his claims, and they have neither the right nor the power to enlarge a patent beyond the scope of the claims, even though the patentee may have been entitled to something more than the words he has chosen to use will include."

Seaburg *vs.* Johnson (76 F., 456).

A decision often quoted is:

> "The claim of the inventor in letters patent must be construed according to its terms, and when its import is plain, resort can not be had to the context for the purpose of enlarging it.
>
> "Some persons seem to suppose that a claim in a patent is like a nose of wax that may be turned and twisted in any direction by merely referring to the specification so as to make it include something more than or something different from what its words express."

"The claim is a statutory requirement, prescribed for the very purpose of making the patentee define precisely what his invention is; and it is unjust to the public, as well as an evasion of the law to construe it in a manner different from the plain import of its terms." See, Keystone Bridge Co. *vs.* Phoenix Iron Co. (95 U. S., 274); James *vs.* Campbell (104 U. S., 356).

White *vs.* Dunbar (119 U. S., 47).

From the principles laid down in these decisions it is not seen how the doctrine of equivalents can be applied otherwise than both forwards and backwards. The claim is to be liberally construed but not so as to read anything into it or out of it to make it different from what a fair interpretation of its terms demand. The same tests should be applied in the determination of the question of anticipation as are applied to find infringement. It is a familiar rule, and often expressed, that a construction which would infringe if later would anticipate if earlier.

SCHROEDER PATENT—CRITICISM—PROPOSED LEGISLATION.

The efforts of the courts from time to time, in giving construction upon relatively broad patents, and in applying the doctrine of mechanical equivalents with such force as to make a finding for a pioneer invention, has called forth much adverse criticism on the part of the public. It has been alleged that the doctrine of equivalents has been used as a veil under which the courts have decided cases at random and without the application of the equitable principles laid down in the decisions noted.

One instance of a case calling forth such adverse criticism is found in the washing machine art. The patent to Schroeder 535,465, March 12, 1895, was construed in the case of Benbow-Brammer Mfg. Co. *vs.* Straus (166 F., 114). This patent discloses a slidable cylinder mounted on a vertical shaft to which shaft at the lower end is attached the clothes stirrer. A segmental

rack on the cylinder is engaged by a pinion mounted on the inner end of a driving shaft, to the outer end of which is attached the crank-handle or fly-wheel. The claim sued on called for a cylinder placed upon the operating shaft and having *a sliding movement thereon.*

"*The main difference between the two is that in* Schroeder's machine the reciprocating motion is produced by the up and down movement of the rack and in the defendant's by the up and down movement of the pinion. This change is accomplished by substituting for the driving shaft of the claim a driving shaft which as the defendant's brief asserts, is well known in mechanics as a 'floating' shaft, and making the necessary mechanical changes incident to the substitution."

Washing machines having the general combination of parts were old prior to the date of the application for the Schroeder patent. The decision of the court, therefore, related to the particular form of mechanism for producing the reciprocatory rotary motion of the clothes stirrer.

Under the above state of facts it has been alleged that the Schroeder patent should not have been enlarged beyond the scope of its claims, and that the doctrine of mechanical equivalents should not have been used as a "mask" under which the court should hold that a claim in the patent which, by its *terms* is limited to a *slidable cylinder*, is infringed by a device embodying a *non-slidable cylinder*.

In view of the decision in the case of Benbow-Brammer Mfg. Co. *vs.* Straus, supra, and other cases of like import, the following statute was proposed for enactment, by Hugh K. Wagner of St. Louis, Mo.:

> "Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that it shall be unlawful for any court in construing any claim of letters-patent for an invention to hold, under the doctrine of mechanical equivalents or otherwise, as an infringement thereof anything on which the terms of such claim understood according to their plain import will not read."

THE COMBINATION.

In applying the doctrine of equivalents, a distinction is made between inventions which are specific devices and inventions which are combinations.

In specific devices, the range of equivalents recognized is much wider than in combinations. In the latter an element is not an equivalent, unless it is substantially the same thing as the patentee has described, operating in the same way.

Wells *vs.* Curtis (66 F., 318) C. C. A., 6th C.

The fact that in a combination all the elements are old does not preclude the benefit of equivalents.

Singer Co. *vs.* Cramer (109 F., 652).

Any substitution in the essential elements of a combination which affects either the means or function of the single element passes beyond the region of equivalents into the sphere of substantive invention (1 Rob., 347).

The doctrine of mechanical equivalents is governed by the same rules and has the same application in a case in which the infringement of a patent for a combination is in question as in cases where the issues are over the infringement of patents for machines or compositions of matter.

Ottumwa Box Car Loader Co. *vs.* Christy Box Car Loader Co. (215 F., 362).

The Substitution of Equivalents in General Combinations.

This question relates more definitely to secondary inventions and improvement patents since such inventions and patents bring out more specifically applicant's exact combinations and arrangements of elements in connection with general elements of some particular art.

Under this head may be classified the famous McNeil decisions (100 O. G., 1976, 100 O. G., 2178) undoubtedly used to excess:

"The combination of a trimmer with one type of stitch-forming mechanism being old, there is no

> invention in combining that trimmer with another stitch-forming mechanism whether that stitch-forming mechanism is new or old."

This decision is used in variation with *In re* Hawley (121 O. G., 691) and *In re* Ratican (162 O. G., 540). The latter held that—

> "the inventor is certainly not entitled to a patent on a new combination merely because he has improved a single element of that combination."

Where the new combination involves one invention, and the improved element covers an invention of a second party, not structurally dependent, no third patent should be granted that would prevent these independent inventors from bringing their separate inventions together.

On the other hand, in the early state of an art, the substitution of equivalents in general combinations may amount to invention. The decisions in the case of the Selden patent was such a holding, the steam engine being held not to be the equivalent of the gas engine in the combination.

> El. Vehicle Co. *vs.* C. A. Duerr & Co. (172 F., 923).

Also, if the new element co-acts with the other elements in a different manner than in the old combination, *In re* McNeil does not apply.

> *Ex parte* Mumford (206 O. G., 878).

DOUBLE USE.

The revolving rack for billiard cues was held void on the ground of double use. St. Germain *vs.* Brunswick (51 O. G., 1129). In this case the revolving dining table and the bottle caster were held to be equivalent structures for bringing around the desired article for use.

In the case of The Penn. R. R. Co. *vs.* The Loco. Engine Safety Truck Co. (27 O. G., 207), and in many other cases, it has been held that—

> "the application of an old process or machine to a similar or analogous subject, with no change in the

manner of applying it, and no result substantially distinct in its nature, will not sustain a patent, even if the new form of result has not before been contemplated."

In this case a form of truck already in use on railroad cars was held to have its equivalent in a similar truck for use as the forward truck of a locomotive engine.

Many other cases of similar import might be cited.

ABANDONMENT.

The mere fact that a claim has been rejected and amended does not operate as an abandonment of equivalent elements.

Reece Button Hole Mech. Co. *vs.* Globe Co. (61 F., 958).

Where three equivalents are described and but one of them is claimed, applicant does not thereby *abandon* the other two ways.

Burdon Wire & Supply Co. *vs.* Williams (128 F., 927).

The mention of an equivalent form or method to that stated in the claim does not *abandon* the equivalent.

Thompson-Houston El. Co. *vs.* Ohio Brass Co. (130 F., 542).

DESIGNS.

"Design patents cover appearances only."
Royal Metal Mfg. Co. *vs.* Art Metal Works (128 F., 128).

"The true test of infringement of a design patent is laid down by the Supreme Court in Gorham Co. *vs.* White (14 Wall., 528) as follows:

"If, in the eye of an ordinary observer, giving such attention as a purchaser usually gives, two designs are substantially the same, if the resemblance is such as to deceive such an observer,

inducing him to purchase one supposing it to be the other, the first one patented is infringed by the other."

N. Y. Belting & Packing Co. *vs.* N. J. Car Spring & Rubber Co. (53 F., 810).
Macbeth et al. *vs.* Gillinder et al. (54 F., 171).
Kruttschmitt *vs.* Simmons (118 F., 851).

MISCELLANEOUS.

In Ex parte Dolph (39 O. G., 239) it was held that the words "or equivalent devices" should not be employed in a claim unless such equivalent devices are clearly described in the specification. Since equivalent devices are always regarded as being covered by a claim, these words are unnecessary in any case and in most cases render the claim indefinite.

Where reference letters are used on drawings the same letters should not be used to designate equivalent elements. The use of letters provided with exponents was suggested in Ex parte Cook (51 O. G., 1620).

The application of the doctrine of equivalents by the Examiners to the work of the office, in addition to a consideration of the rules as enunciated in the definitions depends to some extent upon the training of the individual Examiner. The mechanical engineer who has had the benefit of training in shop work and design will find it more difficult to see invention in differences of form, size, capacity, and proportions and in arrangements of parts than the Examiner who has not had the benefit of such training. The arguments and demonstrations of the attorneys in such cases, are, as a rule, less easily convincing. Likewise the skilled chemist will appreciate more quickly the equivalency of ingredients in any given compound than one not skilled in that profession.

"A mere mechanical substitute for a thing must be regarded as the thing itself."

The question whether the thing is an equivalent or not is a question of *fact* to be determined by the evidence.

"Whether the defendant has used substantially the same means, or, in other words, mechanical

equivalents, to accomplish the same result, is a question for the jury to determine."

"The testimony of a mechanical expert, in a suit for infringement, must be tried by the same tests that are applied to the evidence of other witnesses; and it must receive just such credit and weight as it appears to be entitled to from all the circumstances, and no more."

May *vs.* County of Fond du Lac (27 F., 691).

In applying references in anticipation of claims, therefore, the Examiner should be guided by the same judicial considerations in favor of the public as are given to the protection of alleged inventions in the claims allowed, at the same time bearing in mind that in the presence of a reasonable doubt the benefit thereof should be given to the inventor.

In order to give a clearer understanding of the application of equivalents, and to express in concrete form the scope which has been given to the doctrine by the Federal courts, I have made a selection of a few *specific cases* and arranged them somewhat in the form of a digest. The selection of these cases has been made with a view to clear illustration of the application of the doctrine.

DIGEST OF SPECIFIC CASES.

Elements.

Cams.

In a sewing machine combination:

"While a *cam* and a *wedge* are regarded as plain equivalents (Burr *vs.* Duryee, 1 Wall., 531), yet the use of *two cams* in the defendant's device, in place of *two inclines* or *wedges* in the plaintiff's patent, are *not* to be regarded as the substitution of equivalents, considering their different modes of operation in connection with the rods as arranged in the defendant's machine."

Gray *vs.* Bangs (31 F., 342).

Bearings.

In a journal bearing for stone crushers, a *cylindrical* journal-bearing provided with a *conical journal obliquely placed*, so that the surfaces of the two have a line of contact, is infringed by the equivalent structure of a *conical bearing* and a *cylindrical journal* similarly placed. The first named bearing was held patentable over a ball and socket bearing in which there is but a point of contact.

Gates Iron Works *vs.* Fraser & Chalmers (79 O. G., 2015).

In a treadle for sewing machines, *knife edge trunnion* bearings are the equivalent of *center point bearings* consisting of pointed screws engaging in holes countersunk in the treadle.

Singer Mfg. Co. *vs.* Cramer (97 O. G., 552).

In a hair clipping machine, a *ball bearing* is the equivalent of a *roller bearing* as an antifriction device between the reciprocating cutter plates and the cap. Grass and grain cutters were considered to be cutters for an equivalent use.

Coats *vs.* Boker (119 F., 358).

Fastening Devices.

The use of a *screw* to fasten together two parts, instead of a *rivet*, for the purpose of making them more readily detachable, is but the substitution of a well-known mechanical equivalent.

The rivet made a "permanent structure" of the hook with the plate of the corn-husker, while the screw rendered the parts detachable.

Boss Mfg. Co. *vs.* Thomas (162 O. G., 1183).

The construction of a school desk or seat having slats keyed to the frames with *square keys* is *not* a reduction to practice of an invention for fastening the slats to the frames with *dovetail keys*. However, the *dovetail key* is the equivalent of a *dowel*.

Mallett *vs.* Cogger (16 O. G., 45).

Gearing.

In a knitting machine, a *pin and slot connection* is the equivalent of a *geared connection* between the crank shaft and the second shaft.

McMichael & Wildman Mfg. Co. *vs.* Ruth et al. (128 F., 706).

In actuating mechanism for door bells a *half wheel* or *sector gear* is the equivalent of a *pinion.*

New Departure Mfg. Co. *vs.* Sargent & Co. (127 F., 152).

A *sprocket chain drive* is the equivalent of a *belt* drive as a means for propelling a vehicle.

Sheffield Car Co. *vs.* Buda Foundry & Mfg. Co. (177 F., 713).

A driven friction pulley in engagement with the *side edges of a driving pulley* is not the equivalent of a *driven pulley* in engagement with *periphery of the driving pulley.*

Motsinger Device Mfg. Co. *vs.* Hendricks Novelty Co. (149 F., 995).

Levers.

In the cornplanter cases, a *handle* for moving the connecting rod backward and forward between the hoppers was held the equivalent of a *lever* for performing the same functions.

Brown *vs.* Guild (23 Wallace, 181).

In safety switches for railroad drawbridges: "A rod is the known equivalent of an endless chain where it can be used for the same purpose and effect."

Spain et al. *vs.* Gamble et al. (Fed Cases, 13199).

In a device for actuating the movable jaw of a stone crusher, a *column of water* moved by a pump plunger was held to be the equivalent of a *mechanical lever mechanism* for actuating the movable jaw.

Blake *vs.* Robertson (94 U. S., 728).

Pulleys.

In a mounting for belt pulleys a *pulley revolving on a shaft* is the equivalent of a *pulley having trunnions* revolving in bearings at the ends.

Robins Conveying Belt Co. *vs.* Am. Road Mach. Co., (142 F., 221).
Robins Conveying Belt Co. *vs.* Am. Road Mach. Co. (145 F., 923).

Racks and Pinions.

In a mechanism for shifting car seats, a *rack and pinion movement* for shifting the seat held *not* the equivalent of downwardly extending *pivoted arms* for the same purpose.

Hale & Kilburn Mfg. Co. *vs.* Oneonta et al. (129 F., 598).

Springs and Weights.

In a weighted vent valve, a weight is the equivalent of a *spring*. The interchangeable use of weights and springs is stated as being the stock illustration for equivalents.

Kenney Mfg. Co. *vs.* J. L. Mott Iron Works (137 F., 431).

In the fountain pen combination the *spring* was found to be more than the equivalent of a *weight*. The spring acted more quickly in the direction of the point of the pen without regard to its perpendicularity.

Cross *vs.* Mackinnon (11 F., 601).

"A *weight* and a *spring*, generally speaking, are mechanical equivalents." *Levers* and *springs* are generally equivalents. Interchangeability is an important test in determining infringement. Miller *vs.* Eagle Mfg. Co. (151 U. S., 186). A *spiral spring* is generally an equivalent for a *flat spring*. United States *vs.* Berdan Firearms Co. (156 U. S., 552).

L. J. Mueller Furnace Co. *vs.* Groesdhel (166 F., 917).

Miscellaneous.

In a circuit breaker a spring substituted for a pivot where it performs the same movement and does the same work is an equivalent.

> "I think it clear that a spring is as much of an equivalent for a pivot as is a rod for an endless chain, or a spring for a weight. The question is do they produce the same effect, perform the same function?"
>
> Westinghouse El. & Mfg. Co. *vs.* Condit El. Mfg. Co. (159 F., 144).

Also, on appeal it was held that "the spring must be treated as an equivalent for the pivot" (167 F., 546).

Ropes or *strings* either *saturated with oil or not* are the equivalents of wires or *chains having fusible links* to be ruptured in case of fire. The substitution of one for the other was held to be purely mechanical, such as would occur to any ordinary mechanic.

> Voightman *vs.* Weis Ridge Cornice Co. (133 F., 298).

In a circuit closing apparatus, a *weight* is the equivalent of a solenoid, as an actuating mechanism for a lever.

> Reis et al. *vs.* Barth Mfg. Co. (136 F., 850).

In a device for supporting and delivering paper for wrapping and binding purposes, the *serrated edge* is the mechanical equivalent for the knife and the *sponge* is the equivalent for the moistening roller.

> Natl. Binding Mach. Co. *vs.* J. D. McLaurin Co. (186 F., 992).

Articles of Manufacture.

A device for admitting air to the lower part of a flame of a lamp through many small holes is a mechanical equivalent of one admitting it through larger apertures, one on each side of the wick chamber.

> Ex parte Dietz (Fed. Cases No. 3902).

In a syringe, the *bulb placed above* the *axial line* of the delivery and discharge is the equivalent of the *bulb* placed *directly in axial line* of the tubes.

Morey *vs.* Lockwood (8 Wallace, 230).

In golf balls having rubber cores, a *rubber thread* wound under high tension is the equivalent of a *rubber band* wound under tension. The term "rubber thread" held not limited to a compound cord made by twisting together two or more strands, but includes any strip of rubber of whatever shape.

Haskell Golf Ball Co. *vs.* Perfect Golf Ball Co. (143 F., 128).

Machines.

In a coffee-mill structure, a hopper and *grinding*-shell formed in a single piece is the equivalent of a structure in which said parts are made *separate* and *securely* and firmly united by *flanges, lugs* and *pins.*

Strobridge *vs.* Lindsay, Sterritt & Co. (6 F., 510).

In a reheating furnace for glassware, a *horizontally* revolving table supporting vertical rods and carrying the articles to be heated, and which by its revolution, carries them through the furnace in the arc of a circle, does not have its equivalent in a mechanism in which the carrier is an *endless chain* moving through the furnace in a straight line, and mounted on a movable frame so that the whole may be withdrawn from the furnace.

Natl. Glass Co. *vs.* U. S. Glass Co. (147 F., 254).

Machine Motors.

An *air motor* held not the equivalent of a *water motor* where the advantage of the air motor was not foreseen.

Weld Mfg. Co. *vs.* Johnson Service Co. (147 F., 234).

The coupling of a motor that will run any kind of a machine, to a machine that will run with any kind of a

motor, is not invention. A *pneumatic motor* was held to be the equivalent of an *electric motor* in the operation of automatic dampers. "We can not," says the court, "put the claims in the so-called 'happy thought' class. If in truth a burst of inspiration points to the running of A's machine with B's engine, nevertheless a monopoly can not be based merely on bringing the two together."

Natl. Regulator Co. *vs.* Powers Regulator Co. (160 F., 460).

A *constant volume gas engine* is not the equivalent of a *constant pressure engine*, under a patent entitled to a fair and reasonable, but not a broad range of equivalents.

The Otto four-cycle engine not the equivalent of the Brayton or Selden two-cycle engine in the combination.

Columbia Motor Car Co. *vs.* C. A. Duerr & Co. (184 F., 893).

In electric motor regulation, an *inductive resistance* coil in which a resistance is due to counter electromotive force induced within the coil is the equivalent of a *coil* which causes only *natural* or *ohmic resistance*, the two kinds of resistance coils being well known.

Pieper et al. *vs.* Electro Dental Mfg. Co. (156 F., 672).

In an alternating current motor, a *rotating armature around a stationary field magnet* is the equivalent of a *rotating armature within a stationary field magnet.*

Century El. Co. *vs.* Westinghouse El. & Mfg. Co. (191 F., 350).

Ingredients.

Powdered asbestos is the equivalent of *powdered soapstone* as a lubricant for electrical packings, where the powdered asbestos was accepted by the user as answering every purpose of electrical insulation.

Pratt & Johns *vs.* Thomson (72 O. G., 1347).

Acetone or *ketone* held to be the chemical equivalent of an *alcoholic ingredient* in a paint and varnish remover. The authorities uniformly hold that the word "equivalent" as applied to a chemical action may mean a fluid which is "equally good" with that specified in the patent. Tyler *vs.* Boston (74 U. S., 327).

Chadeloid Chemical Co. *vs.* Frank S. DeRonde Co. (146 F., 988).

Nickel, Cobalt and Manganese held to be equivalents of iron when alloyed with cerium.

Freibacher Chemische Werke Gesellschaft mit beschrankter Haftung *vs.* The Roessler & Hasslacher Chemical Co. (209 O. G., 1689).

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